

AVIATION

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Three British scouts taking off in wingtip formation

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Special Features

NUMBER
24

The Curtiss Attack Plane
The Fourth Congress Of Aerial Navigation
Aerial Photography and Its Relation to Hydrography

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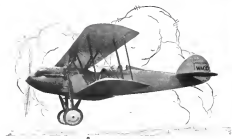
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(Institute of Aeronautics)
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spectacular feat of bravery will be-
come tomorrow's accepted mode
of speedy transportation—inexpen-
sive, dependable, safe!

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ACHIEVEMENT" has been written large in American Aeronautical History during the year that is just ending.

The achievements of men—of planes—of engines.

Into these proud Records—of whatever man, of whatever plane—have been indelibly imprinted "—powered with a Wright Whirlwind Engine".

Distance, Economy, Speed, Endurance—all have been asked of this engine and all have been met—squarely, steadfastly, reliably.

Wright—both Engine and Organization—pledges an unceasing effort to justify this leadership in the year that is opening to us. A year when, more vitally than ever, the experience of the past must be a laboratorial test-tube for performance in the future.

WRIGHT AERONAUTICAL CORPORATION

Patterson, N. J. U. S. A.



The Oldest American Aeronautical Magazine

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Verial Weather Reports

ONE of the most pressing problems which will have to be solved in connection with our navigation in the future is the securing of adequate observations for the Weather Bureau. The Weather Bureau is under the Department of Agriculture which is less vitally concerned with the welfare and safety of the farmer and seaman. Now it will be responsible for the reports upon which armies will have to rely for knowledge of weather conditions along routes which they intend to fly.

Distance, surface conditions have been all that have been necessary to observe for satisfactory weather prediction. With the extension of air lines and the coming of the airplane, a entirely new condition will be met. The wind velocity and direction at various points will have to be scientifically observed. All observations will have to be collected and predictions made at intervals within a very few hours to make them of practical use.

No more service can be rendered to the advance of aviation than to have the Weather Bureau adequately supplied with funds for aerial weather reports. Everyone who has any interest in aviation should lead the effort to securing the aid that will be necessary for satisfactory service.

Why Argue?

RELATIVE to the controversy as to the superiority of air-cooled or water-cooled engines it would seem all rather than it being a case of which was the best, it was which engine was best suited for a particular type of work.

During the latter part of the World War certain types of aircraft were developed for air-sea strikes of aerial bases and defense. And although in a future conflict, air services may operate on an improved basis, with increased formation attack, and closer contact with operations with the ground forces, etc., the objective will be the same, namely, the destruction of the enemy.

Such is so true it is only logical that a general principle be to engage the enemy at high altitude should it be possible with an engine that will give the greatest amount of maneuverability at that height. And, on the other hand, an attack plane that is engaged in ground attack, should be powered by an engine that will give the maximum amount of dive and sea level speed possible.

When an engine is designed to incorporate all of such

desired features, then will be the time to consider complete standardization. But no such aircraft power plant exists today and the research and development of air cooled and water cooled engines has by no means become exhausted. Nor has the perfection of either one reached the point that warrents it being standard equipment in all aircraft. Time may prove that one type of engine's present superiority is a particular phase of performance is only so because of that feature not having been fully developed in the other engine.

And so, in the final analysis, why argue? Let Army, Navy and civilian engineers concentrate on the development of their respective engine designs. Competition may lead to perfection. But rather than consider that perfection means the standardization of the best engine, consider that it means the engine best suited for the work to be performed, regardless of its detail design.

Must We Hibernates?

ONE OF our enterprising contemporaries with keen enthusiasm claims that the West is America's one big market for aircraft and aircraft supplies during the winter season. It states that during this period flying west of the Rockies goes on just as briskly as in summer months while the rest of the country stays on the ground because of inclement weather. It is true, however, and understandable to wax eloquent over climatic advantages, but to call west of the Rockies "the one big" aeronautical market for a large part of the year will stir other aviation centers where flying is thought of in national rather than in seasonal terms.

Fortunately for other aircraft publications who have not the advantage of backward order perpetual sunshine, advertisements of aircraft and aircraft supplies, their pilots and airlines, are a well traveled clan and know their markets. Anyways would be the last to deny the supreme advantage of the southern California climate for year "round" flying. But it does not militate against the idea that the rest of the country folds its wings and hibernates—economically speaking—for six months of the year. Witness the small routes with 35 per cent, or greater performance averages the year "round. Ask the commercial operators of Cuyler Field, Long Island, and the Los Puercos Group at Mt. Clemens, Mich. Will Keesee, Florida or other states, either within or outside the cold belt east of the Rockies please testify!

We'll admit a partiality for flying in pleasant sunshine. But if it's only a fair weather man's delirious dream, manufacturers and backward and backward have better begin now to salvage some of their shakable investments made on the theory that flying is a new form of transportation which functions at a fair average in all kinds of weather.

The Fourth Congress of Aerial Navigation

Delegates From Forty Countries Convene in Rome, Italy

By LESTER B. GARDNER

Delegate of the U. S. Department of Commerce

AMERICAN NEWS of the Fourth Congress of Aerial Navigation held in Rome during the last week of October was limited to had a few lines hidden away in unimportant newspapers that few persons knew that forty countries had sent delegates, at the invitation of the Italian Government, to discuss the most recent developments in air transport. In these Congresses are held only every two years, this session, because of the remarkable world wide expansion of air traffic that has taken place since 1925 had an importance that has not even yet been fully recognized. When the hundred and fifty papers that were presented were made available for general study, it is not too much to say that in them will be found the best contemporary source of information concerning air transport in all its aspects that is available.

Primer Masanet sponsored the Congress in the absence of Prince Amedeo di Savoia-Aosta, Duke of Aosta, the President, whose marriage to the Duchess of Guise was celebrated in Naples the following week. The Honorary Committee was

composed of the heads of the Italian Government, while the committee in active charge of the program was under the direction of the Under Secretary of State for Aeronautics, Raulo Balbo and included the leaders in Italian aviation. The membership of the Congress was of two classes, delegates representing the governments and honorary members representing clubs, aeronautical organizations and aviation companies. Seven hundred and fifty guests attended the session which were held from Oct. 24 to Oct. 29.

The United States was represented by Leland Combs, Ralph P. Wood, U. S. N.; Maj. George E. Lovell, U. S. A.; John J. Ede, Technical Representative in Europe for The National Advisory Committee for Aeronautics; Maj. Lester B. Gardner, Ambassador of Aeronautics, who represented the U. S. Department of Commerce; Lt. Col. Virginia B. Clark, representing the Aeronautical Chamber of Commerce; Clifford B. Harmon, President of the International League of Aviators. Major Goodrich read a paper on "The Development of Civil Aeronautics in America" and Colonel Clark presented a paper in

conjunction with the United States of America". Other countries taking a special interest were Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Japan, Guatemala, Paraguay, Peru, South Africa, Uruguay and the United States. For such a representative group of delegates the Italian Government had everything possible to make the visit not only pleasant but profitable from an aeronautical standpoint.

The Congress started with the official opening in the magnificent St. Peter's Basilica on the Capitoline Hill. The presence of Prince Masanet was expected at the opening ceremony but he was unable to attend.

The opening ceremony was held in the St. Peter's Basilica, the largest church in the world, and was attended by a large number of guests. The ceremony was presided over by the Italian Government and the delegates of the various countries.



Raulo Balbo, Under-Secretary of State for Aeronautics

In all of the military delegates and Italian officials were in uniform with decorations, the occasion was one of great splendor. On the afternoon of the opening day there was a grand reception at the Palace of the Government. The guests were met by the Italian Government and the delegates of the various countries. The reception was held in the Palace of the Government and the delegates of the various countries.

The reception at which all the magnificent hospitality of the Italian City was in full display was given by the Government of Rome to the delegates. The opening ceremony was a grand in the hall of Constantine and Maxima. An elaborate dinner was served after the concert. The members of the Congress were held meetings and afterwards at the Hotel Naxos, the beautiful home of the Royal Academy of the Arts (Galleria degli Uffizi), founded in the 15th century and so called in honor of the Italian Renaissance. It contains a famous Roman National collection of art and lace, surrounded by world famous paintings and sculpture, the delegates met and discussed the problems of aerial navigation. The delegates were held meetings and afterwards at the Hotel Naxos, the beautiful home of the Royal Academy of the Arts (Galleria degli Uffizi), founded in the 15th century and so called in honor of the Italian Renaissance. It contains a famous Roman National collection of art and lace, surrounded by world famous paintings and sculpture, the delegates met and discussed the problems of aerial navigation.

The delegates were divided into five groups: Aerial Navigation, Propellers, Seaplanes and Airships, Technical, and Civil Aviation. At each meeting the papers, reports of which had been received in four languages, were discussed. There were also held the proceedings so that all delegates could hear the discussions.

In the last day a banquet was given at the Hotel Excelsior. The Honorary Signor Balbo presided and after an elaborate dinner he expressed the appreciation of the Italian Government

in meeting such representative delegations from various countries. Responses were made by delegates from several countries after which Clifford B. Harmon presented Major B. Goodrich with the diploma of the International League of Aviators in recognition of his setting a new world's speed record in 1931.

Major Goodrich in concluding his paper made some interesting predictions. He said:

"If in one and a half years this remarkable progress has been made, it is safe to say that the next few years will see developments in this field which will more than fulfill the hopes of even the most sanguine proponents of air travel. The United States will have shown in its air commerce at least things air lines will fly from one end of our continent to the other day and night, with the safety and assurance of the best equipped railway lines of its day."

"The American people are opposed to direct subsidies of any kind, indirect subsidies are, however, viewed as proper encouragement to pioneering enterprises. The roads and shipways have been given financial assistance in the form of direct and indirect aids when these methods of transportation were inaugurated. The American aeronautics movement was made possible by the backing of good roads by the Federal Government, the states and the municipalities. It is a similar way and securities in being encouraged by all the governmental agencies in the United States. The Federal Government is planning, mapping and lighting airways. The states are making it easy for air transport companies to obtain the necessary permits and licenses for their air service and air transport operation. But most important than these, the American public has become convinced, it already sees the possibilities of the airplane and the shipway as a means of transport."

U. S. Development to Differ

"The United States will develop its commercial aeronautics along lines that differ widely from European practice. Planes are being constructed to fulfill every need but those that can carry heavy loads of mail and goods are the most immediate requirements and they are being manufactured in large numbers. The demand for fast passenger service by air in the United States has not been as great as in Europe but it is anticipated it will equal European travel within a year. The operation of airship traffic might mean between proposed American cities makes it somewhat difficult for airlines to provide service to offer much saving of time. The lighting of the airways now goes on night air transportation."

"If America proves to be the world that airplanes may be operated for the carrying of mail and merchandise with financial results, it may demonstrate a fundamental fact that industry in all parts of the world may utilize with profit. While this program is being made in the United States, the European air lines are passing experience in carrying passengers which may be useful to American air transport companies. When both systems are proved to be commercially profitable, the substitution of the three kinds of lines will add to the possibilities of the airplane."

"Thinking ahead to the future as Lindbergh's flight puts the way, Earl, Chamberlain, Mailhead, Rosenberger and Beebe have added leaders to the roll of the American pilots. They form a corner stone of the foundation of a vast air commerce in that they establish confidence in the minds of the public. The public, steady workers will follow in the footsteps of such leaders. With the support of a people awakened to the benefits of air travel, they will progress with determination toward realization of a great vision—to make air travel take its place with trains and ships as standard, fast and responsible means of transportation."



An American group attending the Congress. Left to right, John J. Ede, J. A. McVeen, Maj. George E. Lovell, Jr., Waldenham, Mrs. Lester B. Gardner, Clifford B. Harmon, Maj. Lester B. Gardner and Leland Combs.



Front quarter view of the new Curtiss attack plane, the A-3 "Falcon"

The Curtiss Attack Plane

A-3 "Falcon" is Fitted With Six Machine Guns, Two Of Which are Mounted in the Bottom Wings

THE CURTISS "Falcon" originally produced as a two-seater observation airplane for the U. S. Army Air Corps, has evolved, like the single-seater Curtiss "Blower," into a leader of two-place machines, in 1928 various features in military operations.

The latest development in this series is the A-3 attack plane, designed for ground attack on trenches, troops, supply trains, and the like. This type of machine, used in early a few years of the World War, is undoubtedly destined to be an important factor in future conflicts, and consequently the Air Corps is developing aircraft especially suited for the work.

The A-3 "Falcon" resembles the observation type of "Blower," with the exception of armament which has been greatly increased. In the A-3, one 30 caliber Browning machine gun is located in each lower wing, with the nozzle protruding through the leading edge. Several hundred rounds of ammunition for each gun are carried in ammunition boxes within the wings. These wing guns are operated by electric trigger on top of the control stick, and are so arranged that the pilot can fire either gun independently or both simultaneously.

In the fuselage, two Browning 30 caliber guns are mounted, instead of one as in the observation type of "Falcon." Both are of the fixed type, synchronized to fire through the propeller disc, and operated by trigger on the control stick. Defenses armament, as in the observation plane, is provided by a double Lewis gun on a swivel mount just above the cockpit.

In addition to the above, the A-3 carries two bomb racks, fitted into the under surfaces of the lower wings, and capable

of carrying a quantity of twenty-five pound fragmentation bombs. These can be released individually or in salvo by pilot.

Then the complete armament of the A-3 consists of six machine guns for offensive warfare, two defense guns of a quantity of small bombs. The radio and engine equipment, while is currently carried by the observation type "Blower," is not provided in the A-3, but can be installed if desired.

Preliminary flight tests have shown the A-3 to possess top speed of approximately 145 m.p.h. Thus, combined



Side view of the Curtiss attack plane.

with high degree of maneuverability and complete armament, make it a decidedly formidable weapon of attack.

Another version of the attack plane, being produced for both the Army Air Corps and the Marine Corps, is similar to the A-3 but powered with the Pratt and Whitney "Wasp" radial engine. The "Falcon," like all present Curtiss types constructed with a detachable engine mount and the substitution of powerplants is thus easily made without any change in the airplane itself. Flight tests on the "Wasp" engine attack plane will be made within very near future.

As a observation airplane, for which the "Falcon" was originally designed, these types are now being produced. The O-13, latest development of the original O-12 observation



Close-up of the nose of the A-3. Note the mounts of the machine gun in the leading edge of the wing.

plane, is now being produced in large quantities in the standard observation type of the Air Corps. This plane, with the Curtiss O-12 engine, has a top speed of about 145 m.p.h., and a cruising speed of 600 m. at 115 m.p.h.

A variation of this type, for use by Army and National Guard, is powered with the Liberty engine, and still another type, for Army and Marine Corps, is equipped with the Pratt and Whitney "Wasp" engine. Both of these variations are identical with the O-13 observation plane, except for powerplant.

Then the original Falcon has been developed into a series of two-place observation and attack planes for the military air services of the United States. All of these machines are of essentially the same basic design, which has been thoroughly service tested over a period of several years, and in which, therefore, maintenance difficulties have been reduced to a minimum.

Construct Spruce Storage Shed

J. V. G. POSEY & Co. of Portland, Oregon, is constructing at Tacoma, Wash., a storage shed especially for airplane spruce. This shed will have a floor space of 100,000 sq. ft., and will be used for storing and preparing orders for shipment after the stock has been manufactured and cured. Temperature and humidity will be constantly regulated by automatic thermostatic control.

Posey & Company supply airplane spruce rough green, rough air dried, kiln dried rough or finished to suit. Mr. Gilmore, the superintendent of the plant spent September visiting aircraft producers in the middle west and south. He found that manufacturers preferred their spruce kiln dried to government specifications at the mill and finished to suit. This practice saves freight and it saves waste.

Story Eaglerock Sales Co., Opens Aviation School at Tacoma, Wash.

THE STORY Eaglerock Sales Co., distributor of Alouette products in Western Washington, has recently opened a school of practical flying. The course includes theory of flight, motor repair, aerial photography, business administration, aerodynamics, and air hand-on instruction of actual flight instruction. The school uses the system of repeat areas whereby each student is graded in percentage of accuracy in his ability to pass the various subjects offered.

Classes are held three times a week. The purpose of these classes is to give the student the most thorough training possible in all subjects knowledge mentioned. At the present time all instruction is given in Eaglerock plane. A K-1 aerial camera is used in instruction in the art of aerial photography and the command of the business office is at the disposal of the student so that he may thoroughly comprehend the business management.

C. L. Langdon, owner of the San Francisco-Spokane Air Derby, is acting as chief pilot and chief flying instructor with Vincent Adams as his assistant. N. C. Adams is in charge of the open shop with Orville Martin as his assistant. J. R. Story is attending to the enrollment of students and business management while Mrs. Story is handling the secretarial position. The school is located at the Moffat-Hartness Airport just seven miles from the business district of Tacoma.

Method of Installing Valve Seats Lengthens Life of Hisso Engine

ACCORDING to a letter from C. B. Gray of Salt Lake City, Gray's Garage has developed a method of installing replacement valve seats in Hisso-type engines that greatly lengthens the life of these engines. Damaged Hisso-type valves can be replaced and will give long service.

A White-Jones Precision Valve Replacer with certain attachments, made by Gray's Garage, is used. The replacer consists of a base, a radial arm, plate and cutters. The cutters are held in position by the pilot and the radial arm which is fast in the base is turned in by the operator back. The pilot is rotated so as to fit snugly into the valve stem guide and thus secure perfect alignment of the cutter. A cut is made through 3/16 inch of steel and 1/16 inch of aluminum. The cut when complete is 3/16 inch in diameter by 3/16 inch deep. The replacement cut is made by high grade steel, thereby giving longer than the cut to get a snug fitting fit. The replaced seat cannot make the pending or work out because it is exactly and firmly placed. It is afterwards tried up by the same cutting equipment and the valve ground in.

N.A.C.A. Technical Note No. 267

TECHNICAL NOTE No. 267 entitled "Pressure Distribution on Wing Ribs of the V-17 and V-2 Airplanes as Flown by E. V. Rind" was recently published by the National Advisory Committee for Aeronautics. This paper is the first of a series of notes, each of which presents the results of pressure distribution tests made by the N.A.C.A. on single wing ribs of the V-17 and V-2 airplanes for a particular flight condition. The report deals with level flight conditions in the form of curves showing the comparison between the pressure distribution over a representative rib wing, R.A.F.15, and a moderately thick wing, V-2 A-25, for various angles of attack.

The Albany Conference

New York Holds First Statewide Aviation Conference And Adopts Regulation and Safety Program

A FOUR-PART program to regulate and safeguard aviation in New York State was adopted at the first statewide aviation conference held at Albany on Monday, Nov. 28. P. Traylor Dawson, assistant secretary of war, and William P. MacCracken, assistant secretary of commerce for aviation, sounded a warning of the dangers of uncontrolled flying.

The program is as follows:

Pursuing the 1928 Legislature and month to create a standing committee on aviation to require rules the necessary laws that should be enacted.

Create a New York State Conference of Aviation to cooperate with the Legislature.

Prepare at once legislation designed to set up a system of state regulation and control of flying and flying.

Introduce other legislation designed to enhance rules, regulations, standards and joint examinations to appropriate money for the establishment of airports and aviation fields.

Close to 400 persons, including city, state and federal officials, attended the conference. Among those present were:



P. Traylor Dawson, assistant secretary of war.

fall into line with states that cooperate with government efforts to set the state of aviation and flying. Federal laws do not apply to aircraft not engaged in interstate flying. For instance, an unlicensed pilot can go anywhere he wants to in New York in an unlicensed plane and the ship is usually a flying outfit, long overdue on the wing.

"Those that have no license—state or federal—should not be permitted on the flying line of any unlicensed pilot in New York. The same should apply to pilots."

"Quick there are no dangers as quick doctors and flying pilots as dangers on ships with better bells. There are certain 'schools of learning' long on pressure and short on safety, known as diploma mills in aviation. Their graduates maintain a different attitude to real air program."

"The fact, it has not been possible to control the quick pilot at his license, hence, it is necessary to stop him at the field. In other words, because of the pilot who has no license and other clear of the plane that looks regulation rules as its main."

"Air regulation and the licensing of planes and pilots is essential for the protection of the public and for the promotion of commercial aviation by responsible operators of legitimate lines. The sooner we eliminate reckless and irresponsible pilots, the sooner will an transportation take its place among the great public utilities."



William P. MacCracken, Jr., assistant secretary of commerce for aviation.

"I am confident this conference will speed action toward the adoption by the Legislature of a well considered aviation program. It is essential that such a program be well considered because aviation should be helped and not hindered by supervision. The last session of the Legislature will be the introduction of bills among at state regulation over aircraft. These measures were not desirable. They failed, mainly on account of the need of unity between state and federal statutes. Commercial law has been open to question, largely without having to consider those of legislative legislation. New York and other states should stand on their feet but they should be harmonious with federal law. It is impossible for pilots to carry law through in their pockets. They may want to do it if states had varying statutes. The federal law have proven their value. This should be adopted by New York in most state needs."

"The licensing of aircraft and pilots should be the first step toward the establishment of a definite state air force. Another question to determine is the role the state should play in the development and maintenance of airports. Should the work be left entirely to the licensee or should the state shoulder some of the burden? Should airports, from a maintenance standpoint, be placed on a par with highways? In

regards air development and by that I mean airport construction has been borne entirely by the licensee despite the fact that it is open to doubt if an airport, in a strict sense, is a local proposition."

Mr. MacCracken emphasized the necessity of safeguards against "hot air."

"If 'hot air' were," he said, "that the problem of regulating aviation could be either simple, but it is not. Three principal difficulties have been encountered. One of these is the division of jurisdiction between the Federal Government and the state. The second is the difficulty in providing regulations which are practical and of the same force and as stringent as in other industries of this new air. The third is inherent in aviation and is due to its mobility and flexibility."

Many Applications Still Pending

"Before action is taken by the state authorities, or the Air Traffic Act is amended to require the licensing of all aircraft and pilots, there will be a certain percentage of pilots operating in this country that have not been licensed. This will be flown by pilots who have not passed any examination, either as to their ability, physical fitness, or skill, as to the air."

"It is interesting to note that of some three thousand applications received at the Department of Commerce, less than one thousand of them have special identification marks only. It is only fair to say that many applications for licenses are still pending. Several of the states have recognized that in order to adequately protect their own citizens, both on the ground and in the air, it was necessary to provide some system of regulation."

"Since the passage of the Air Commerce Act, two types of regulatory legislation have been enacted. One sets up a local board for licensing aircraft and pilots, but except for Federal license from issuing a state license. The other makes it mandatory that all aircraft operating in the state shall be licensed by Federal authority."

"The Federal government recognizes the desirability of uniformity, not only in the Air Traffic Rules, but also in the qualifications and classification of pilots and in the certification of aircraft, and the Department of Commerce will cooperate insofar as it is able, with the state that desire to meet the Federal standards."

Special Committee Makes Report

"This committee fell into six chapters. The first—licensing of aircraft, including experimental planes. Second—marking of licensed and unlicensed aircraft so as to distinguish between the two. Third—requirements relative to the operation of licensed aircraft. Fourth—licensing of pilots and mechanics. Fifth—Air Traffic Rules. Sixth—penalties and enforcement provisions."

"This committee is divided into five classes—transport pilot, limited commercial pilot, individual pilot and private pilot. Applicants for these licenses must pass physical and theoretical examinations and give a practical demonstration of their ability. Thereafter the license will be renewed on the basis of a periodical physical examination and submission of evidence of the required number of hours of solo flying. In the case of the transport pilot, the physical medical examination is not as easy as in all other cases, once a pilot is licensed, he must be renewed in all other cases, once a pilot is licensed, he must be renewed in all other cases, once a pilot is licensed, he must be renewed in all other cases."

A special committee appointed by the conference made a report to the conference on the New York State aviation program. The committee was headed by the president of the State Council of Mayors and two members appointed by him; the president of the New York State aeronautics conference and a member of the New York State aeronautics conference.

member to represent only one city, three New York State residents members of the Aero Chamber of Commerce, one member representing the New York State Association of Real Estate Boards, the Governor of the State National Aeronautics Association chapters and four members named by him, and five members of the New York State Department of the American Legion to be appointed by the commander of the Legion. The committee report was adopted.

Acosta and Bergin to Try for New World's Endurance Record

AT THE time of this writing preparations are being completed for an effort to repeat for the United States the world's longest endurance record. The record is now held by Rudolf and Edvard, the German aviators who on Aug. 5 of this year remained in the air 32 hr. 25 min., surpassing the record of 28 hr. 11 min. made by Bert Acosta and Clarence Chamberlin last spring. Bert Acosta, with Earl Bergin as copilot, intends to "break back" by again breaking the record. Announcement of the proposed flight was made a short time ago by Robert W. Farber, vice-president of the



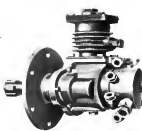
A group at the christening of "The Splendor"—left to right, William P. MacCracken, Jr., Earl Bergin, Mrs. Elizabeth Robinson, Bert Acosta and P. Traylor Dawson.

Splendor-Bushman Electrical Co., Newark, N. J., which is sponsoring the flight. The flight will be made from Curtiss Field, N. Y.

Far has accepted to repeat the endurance record Acosta will use a Fokker Universal built by the Atlantic Aircraft Corp., Hawthorne, N. Y. "The Splendor" is the plane was recently christened, weighs 2100 lb. empty. It is intended that it will take off for the endurance flight tonight about 10:00 p. m., leaving 2000 in for 400 gal. of gasoline, and including the pilots and mechanics.

"The Splendor" will be powered by a Wright "Whirlwind" 25 engine. It will be the world's lightest standard except for Splendor's spark plugs and the Splendor's 8N 9 double magneto, a newly designed aircraft magneto, which is dual and water proof and weighs 90 lb. This will be a weight of approximately 4 lb. per magneto and show a few extra pounds of gasoline to be carried.

The Heywood Injector Starter



Designed for Use on Airships, Seaplanes and Land Planes

ONE OF the most tested and reliable aircraft accessories on the market is the Heywood Injector Starter manufactured by the Detroit Air Appliance Corp., Detroit, Mich. The Heywood Starter is for use on airships, seaplanes, land planes and trucks, and was designed by Charles F. Heywood. Mr. Heywood's experience in the use of electric devices dates back 27 years, and the designing of the Heywood Injector Starter is another of his useful products. Many leading aircraft manufacturers are now equipping their products with the Heywood.

Apparatus Weighs Only 27 Lb.

When installed the apparatus is very compact and weighs but 27 lb. The resistance at the starter is not enough to cause fuel starting and cracking, inasmuch as it is spread in the same manner as the starter used in the automobile. The job needed in the cockpit of the plane merely presses the starting button with the toe, and due to the rapid expansion of the starter's mechanism, the engine will respond almost instantly.

The Heywood Starter underwent a most successful test recently in the Captain Wilkins Flight to the North Pole. At that time Captain Wilkins used a Heywood Starter, and the Heywood Starter was part of the equipment. Upon his return to Detroit, Captain Wilkins complimented the Detroit Air Appliance Corp. on its product and stated that the starter functioned perfectly in the extreme weather, and eliminated the necessity of his occupying the "creeper." His statement went further on to state that the apparatus was failed in function at any time.

A general description of the Heywood Starter is as follows: By applying a pressure of air and positive motor high pressure to an engine's combustion chamber, the engine is put in motion almost instantly at 700 to 800 revolutions per minute with the starter. The air pressure is substantially equivalent to the engine pressure when an engine is running and affects the same action. The flow of air and gas being periodically used, starting is practically instantaneous.

Engines of most power and both construction, such as are

used in aircraft, are often slow to start, particularly in cold weather, because of the difficulty in getting sufficient speed of rotation to cause the carburetor to function to its capacity of supplying a proper mixture for starting. The Heywood starter was designed with the idea of overcoming this difficulty.

The starter's operation comprises a small crank or cam driven by compression. This crank takes the task of about 6/10 in. 10 seconds, an automatic valve then releases the fuel from the compressed when 400 lb. pressure is obtained a release valve for starting, which valve has the cylinder distributor and copper tubing. The operation is pressing a starter button, releases the compressed air from its tank to the distributor which is timed and releases with the engine. The distributor divides the air into two paths. The upper portion of the air is conducted through a small passage in the cylinder that is in the piston, there being a tank from the distributor to each cylinder. Entering the cylinder the air flows the piston downward and the engine's motion begins.

Starter is Entirely Automatic

Randomness in the matter of the air and a pump is a convenient means of sending gas through a "starting process" and is turned into the cylinder which is in the compression stroke. Invention takes place when the engine is complete at double port by double control, with the effect of speeding the mixture already being in the air. As an advantage, forced in this way, being the carburetor, the mixture is put in complete. The starter is a small automatic, and operated from the pilot's cockpit at all times the engine without any anti-freeze whatever. Another feature of the starter is that while in flight a pilot or a co-pilot, in the engine, should the pilot drive a water battery. While it is a common fact that it should speed and power. This comes about in the same way as the starter the matter. All that is required is the pressure of the starter button. While it is a common fact that it should the automobile driver endeavor to do this with the engine in

and even the starter as well as other parts of the motor, put with the installation of the Heywood Starter in the engine, this can be done, without the slightest injury to starter or motor. In fact it has proved that there is absolutely no jump time.

N.A.C.A. Publishes Report on Combustion Time in Cylinder

THE NATIONAL Advisory Committee for Aeronautics recently published report No. 276 entitled "Combustion Time in Engine Cylinder and its Effect on Engine Performance" by Charles F. Marvin, Jr. As part of a general program to study combustion in the engine cylinder and to correlate the placement of combustion with the observed performance of actual engines, this paper, which was written by R. W. Spence, and the work undertaken at the request of the N.A.C.A., presents a detailed outline of what may happen in the engine cylinder during the burning of a charge. It also suggests the type of information needed to supply the details of the pressure and periods over combustion time and to effect the performance of the engine.

A detailed concept of a flame front which is assumed to move uniformly from the point of ignition at pressure, and combustion based on the area and velocity of this flame and the density of the unburned gases are made to determine the speed rate of combustion. From this rate the mass which has been burned and the pressure at any instant during combustion are computed.

The present is then reviewed as an effort to determine actual rates of combustion and flame velocities from the pressure is recorded on indicator diagrams. The effects of different rates of combustion on engine performance are then discussed and the importance of proper spark advance is emphasized. Report No. 276 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

English Aircraft Firm Builds New Biplane for the R.A.F.

THE WESTLAND Aircraft Works, Yeovil, England, recently completed what appears to be a very interesting which is biplane. As the plane is for the British Air Ministry "Two-Place Light" only a few details on the plane may be published. The Westland "Wasp" proved with a Brit



The Westland "Wasp" sitting on the ground.

ish Jupiter engine is a general purpose airplane, which can be put to a variety of uses and is now in production for the Royal Air Force. It serves especially for bombing, reconnaissance, and photography. The airplane is of all metal construction being built up from separate tubes in a way which lends itself to rapid production. There is plenty of room in the fuselage for all the varied equipment which has to be carried.

The machine has a very good performance and is pleasant on all controls. Balanced ailerons are fitted on all four wings. Controls and tanks are carried inside the fuselage, and gasoline tank feeding by gravity, the others by means of a Venturi valve-driven pump. Particular attention has been paid to facilitate the operation of the fuselage and engine mounting, and the seating can be removed in a few seconds in the case of the pilot's seat against the engine controls, tanks and the front portion of the fuselage. The undercarriage is of the fixed Westland type pneumatic type.

The principal dimensions are:

Span 46 ft. 6 in.
Length 31 ft. 8 in.
Wing area 400 sq. ft.
Wing area 400 sq. ft.

Goodyear Industrial University Has New Course in Aeronautics

A CLASS in aeronautics, the first of its kind in American industry, has been inaugurated in the Industrial University of the Goodyear Tire & Rubber Co., at Akron, O.

The new course, taught by aeronautical engineers and airship and balloon pilots from the staff of the Goodyear company and the Goodyear Zeppelin Corp., a subsidiary, commences all the work usually given in a "ground school," and includes practical flying instruction in the Goodyear air yacht "Wasp."

Goodyear Industrial University, the largest school of its kind in the United States, annually enrolls for all the courses given about 2000 students from the factory and allied firms. Twenty-five men are at present taking the aeronautics training although this school has been in existence for more than the rubber company personnel have applied for the work, according to university officials.

During the war Goodyear maintained a school in balloons and aerobics instruction for the Army and Navy services and several hundred officers of both branches qualified as pilots and observers. The school is a branch of the company near Akron. Goodyear has been in the lighter-than-air craft manufacturing business for more than 35 years.

Among the instructors of the new course in aeronautics are Dr. Karl A. Arnold and W. T. Van Orman.

Model Airplane Manufacturer Completing Tour of Country

JAMES A. DIXON, of John-Dixson Co., Cleveland, Ohio, manufacturer of miniature and model airplanes, is completing a country-wide tour in the interest of model airplane sales. During the tour, Mr. Dixon interviewed several leading members and school heads, directors of Boy Scout camps and members of Y. M. C. A.'s and found an unusual amount of interest in the subject of model planes.

Mr. Dixon has been attracted to aeronautical subjects for many years and believes that in order to properly interest boys in model planes, something must be given them that is more than a toy.

Airplane Radio Sets

Some General Radio Communication Information On Selecting
An Aircraft Set for Commercial Service

By LAWRENCE A. HYLAND

*Radio Engineer
Article Three*

BEFORE SELECTING an aircraft radio set to be used in commercial service a study should be made of the communication problem. The relative merits of telephony and telegraphy will bear thorough investigation. To guarantee that the radio facilities will not fail when badly needed, there must be an examination of the emergency communication provisions.

At first glance there appears to be everything in favor of radio telephony as the type of communication to be employed in air commerce. Like many a plain reader, however, radio telephony has several desirable characteristics not apparent to the casual eye. It is, therefore, necessary to make an analysis before choosing the type of transmission to be used. A comparison of telephony and telegraphy will be made as follows:

1. The distance over which communication can be obtained.
2. Repetition and simplicity.
3. Weight and space.



Shown an emergency transmitter. The little black box with the meter is a complete self-contained emergency transmitter.

4. Cost.

5. Operating personnel.

Research workers of the Bell Telephone Laboratories have found that ordinary conversation to be intelligible demands that seventy per cent. of the speech be heard. To transmit a message with accuracy by telephony requires an input of twenty per cent. audibility of all words. The reader perceives this statement every time he copies an address given to him over the 'phone. Now, in speaking the radio has infinite advantages. Only an infrequent interval is available when which represent "full power" of the conventional voice. Below this "full power" are overtones and harmonics and many syllables of low intensity. These weaker tones are as essential to clear speech as the "full power" sounds. The transmitter, however, must be adjusted by the "full power" with bias. If made to deal with least efficiency with the weaker tones the transmitter will make the louder tones noisy and

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difficult to understand. It is by the weaker syllables of ten to twenty per cent. of "full power" that range (or distance over which signals can be heard) is determined. Another limiting circumstance in the transmission of speech is that the energy spreads out over a band of waves on either side of the carrier or modulated wave. Much power is lost in this process and the range is correspondingly reduced.

Radio telegraphy, on the other hand, is always at full power. There are no weak spots. The energy in every dot and dash is at a maximum. Also, in code transmission the power is concentrated in a single wave or, in the case of alternating current transmitters, is contained within a narrow band. This makes for high efficiency and long ranges.

To illustrate—in the other type of broadcast receiver (and some call so) it is possible to tune in many signals. If the whole had great intensity an intelligible program could be found within a degree or two on the dial. Other kind wireless stations which operate at greater distances or had low power. To attract the identity of these latter stations by the automatic measurements was a fascinating game which required patience and concentration. A modern steel signal would mark the receiving point of a program which could never be distinguished at all.

Radio Telegraph Set of Simple Construction

Signals are the staff from which the code signals of the radio telegraph are made. The range of the signal is the range of the telegraph, usually greater than the distance signals can be transmitted.

Noises at any level, in the ground stations or in the aircraft, seriously interfere with telephone working. The voice team have the same (rich as many) interfering noises. Telegraphy, however, is a high code which penetrates through any but the most severe static or mechanical disturbances.

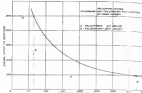
The transmission from a radio telegraph set has, therefore, many times the range of the telegraph, the power at the two stations being equal.

A telegraph set, like all the elements of a telegraph set plus the additional circuit and vacuum tubes necessary to produce the modulated tones of wave generator in telephone transmission. For phone power supply a high voltage direct current generator is connected as modern vacuum tubes take from 100 to 1000 volts to operate efficiently. Direct current generators of this voltage rating are subject to frequent failures when made up in the light, compact units required for aircraft work. Small commutators and their brushes are stressed under the high loads.

The code transmitter can utilize lower voltage generators due to the greater range allowed in the radio telegraph. The efficiency of the vacuum tubes, when used with low voltage is one too good but will permit few work. There is, however, a power not ideally suited for telegraphy which cannot be used for telephony. Telegraph transmitters having properly arranged circuits operate from an alternating current supply. This permits the generation of current at a low voltage. Small transformers located within the radio set step up the low voltage to any potential needed by the vacuum tubes. The A C generators are easily built and are extremely rugged.

Thus, by means of lower currents and takes the radio telegraph set is of simpler construction and less subject to failure. The reliability of alternating current telegraph sets has been demonstrated over long periods of time and under difficult conditions. The best of telephones and associated high tension D C generators have proved to be inefficient and less rugged.

Radio-telephone work more than do telegraph transmitters. Each radio vacuum tube and the connecting circuit adds a



Graph of relative range of telegraph and telephony communication of same power.

few ounces. Extra insulation on the cable is a bother. The distance in force of the telegraph equipment is only a few pounds but is an appreciable percentage of the total weight. Space requirements do not differ in any great extent, but the code sets, having fewer parts, take up less room.

A telegraph transmitter costs less than a radio phone. The difference in generation accounts for much of the differing expense. The initial expense of a telegraph is from twenty to thirty per cent. greater than for telephony equipment. Maintenance charges will run in about the same proportion.

Advances of radio telegraphy as the means of communication between aircraft and ground stations, rests upon the old principle of comparison in the one which will affect the other. The fact that it takes a trained operator to manipulate a telegraph transmitter while anyone can use a telegraph set. That anyone can talk into a microphone is admitted but the real question here something is say as in the question: a person must possess to operate any type transmitter.

Interference of Radio Laws Overlooked

The Department of Commerce through the Chief of the Radio Division has not interfered with the apparatus installation of radio in concentrated aircraft. It is the Department's wish to let aircraft radio whenever possible, and to permit the airline operators to work out their needs with no interference from radio inspectors. Many instances of radio laws have been and will be overlooked under this broad policy. With the most general adoption of radio by aircraft operators the radio inspectors will be compelled to require compliance with Federal regulations. Otherwise there would be constant interference with all radio traffic. The first of the regulations to be enforced will be that which limits the operation of any transmitting station, telephone or telegraph, to persons having a license from the Department of Commerce. A license to operate a telegraph transmitter will sell for \$1 more knowledge from the holder than will a license to operate a telegraph. Any licensed radio operator must know a certain familiarity with radio practice and must know the radio code. A transmission of the license holder is made at periodic intervals to assure that he has maintained his proficiency. Under these circumstances the telephones and the radio telegraph are placed on an even basis so far as personnel are concerned.

Whereas a radio transmitter is to be placed on an airplane the following comparison of telephony and telegraphy should be considered. Each has its place. Where the distance

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- Fuel Sender
- Head Fuel Pump
- Heads Flares
- Lamps, Instrument
- Landing Light
- Navigational Light
- Oscilloscope
- Oil Pressure Gauge
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Good lighting means good landings. Use Wiley Flares and stay safe.

Flares are stored in stock at Brooklyn, New York, 20 E. 1st St., New York, and San Francisco. The price is \$1.00 each, 10 for \$10.00. In New York, 20 E. 1st St., New York, 20 E. 1st St.

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between ground receiving stations is less than one hundred miles the telephone may be shown with fair assurance of success. Greater distances make the efficiency of the telephone doubtful. In any event a telegraphic provision should be incorporated in all telephone transmitters to give the extra punch when needed. For instance, on air route between Havana and Key West (nearly miles) the telephone would serve well on three hundred and fifty days of a year. The other fifteen days will have the unusually bad radio weather for which the Gulf of Mexico is noted. On these days the telegraph attachment will easily maintain communication.

No License Is Required

The above discussion has dealt almost entirely with transmitting equipment. Fortunately, a radio receiver suitable for telegraphic work is also capable of telephone reception. It is as efficient for one as for the other. Any difference in receiving results on the two types of communication is not a function of the electrical action of the receiver but is usually due to (a) the penetrating noise of telegraphic transmission; and (b) the inefficiency of the telephone for communicating over distances.

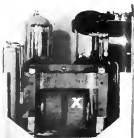
No license is required to operate a radio receiver for any purpose whatsoever. For that reason several air lines are considering the installation of a radio receiver to be used as a means of providing the pilot with weather service and, possibly, with directional indications. The direction finding will be discussed in a later article.

For weather service it is intended that radio telephone signals be broadcast by a ground station and received by the pilot while in flight. The practicability of such a scheme will depend entirely on the power of the ground station and on the number of stations along the air route. Eventually the Bureau of Lighthouses or aeronautical governments will provide the ground stations. However several years will elapse before all airways are equipped. In the meantime airway operators who want radio communication will either have to build their own radio stations or arrange with existing broadcast stations for the transmission of the airway traffic. A ground radio telephone station with sufficient power to be of value to aircraft would cost upwards of ten thousand dollars. Stations should be located at least every two hundred miles, if continuous contact is desired. Such an investment is not yet warranted on the longer air routes. On some airways the established broadcast stations might transmit the weather information. The value of such an arrangement is predicated: It would be unfortunate for a storm to become dangerous in the middle of a high class airline program.

Telegraphic Equipment Recommended

There is, of course, a question with the provision of the air line. A powerful ground radio telephone system can be constructed for two thousand dollars. Stations of this type need only be located at six hundred mile intervals along an air route or at terminals. The weather information, transmitted by simple code, is received and interpreted very readily even by a novice.

This extensive discussion of the values of telegraph and telephone equipment has disclosed the comparative inefficiency of the telephone for aircraft communication. Radio distances are at best variable quantities with wide seasonal and daily fluctuations. It is of no real worth the radio transmission of the signal at ground stations and get messages through under any atmospheric conditions. Radio must be due the airways what the telegraph does for a railroad system. Until the airways are equipped by the government with sufficient radiophones of the necessary power (is lower price) the operation of airlines who wish to take advantage



An Alternating Current Aircraft Radio Transmitter. The transformer X which steps up the low generator voltage is rated 1000 volts for the large vacuum tubes. Available space 30 in. Weight 35 lb.

of radio to an end in the navigation of their craft could do well to use telegraphic equipment and simple code.

In the construction it is of interest to note that European air lines have virtually abandoned the telephone as a method of making for airways communication. Telegraphy is used for short distances or when possible but the telegraphic radio system carries the traffic when conditions are unfavorable.

There are several schemes for providing radio traffic from aircraft in an emergency. An airplane equipped with an auxiliary transmitter can easily send messages after a forced landing provided the motor is running. However many forced landings are the result of stalled motors in which source of power seems desirable.

One method is to have a small emergency radio to utilize

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Some Notable Lorraine-Dietrich Performances 1925

34,000 miles in 340 hours of flight — Rome-Melbourne-Tokio-Rome, achieved by Colonel De Pinedo in a S. A. V. O. L. A. flying boat with 450 H. P. engine.

New York-Buenos Aires, by Dugan, Offner and Campenelli, in a S. A. V. O. L. A. flying boat, with a 450 H. P. engine.

1926

3,500 miles in 3 days, by Arrachart and Carol.

(Circuit des Capitales), in a Potez XXV, with 450 H. P. engine.

6,500 miles in 6 days, 18 hours, Paris-Peking by Pelletier-Dorey and Carol in a Sogusat with 450 H. P. engine.

6,500 miles in 9 days, (9 stops) Tokio-Copenhagen by Captain Edvard Syng and Fokker with 450 H. P. engine.

4,000 miles in 41 hours 45 minutes, total time, Paris-Rome-Tunis-Casablanca-Paris by Pelletier-Dorey and Carol in a Potez 25 with 450 H. P. engine.

1927

15,000 miles in flying boat across Africa by Capitaine de corvette Gaudin and mechanic Ropin.

Crossing South Atlantic from Bahia to San Fernando de Noronha, 3500 miles in a non-stop eight days of 17 hours, 30 minutes by Major Surmeire de Belres.

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with several dry batteries. Two disadvantages are found with this arrangement. Dry batteries gradually deteriorate and hence need pieces of equipment are always needed, and are always a nuisance. When urgently needed this type of emergency radio apparatus, when recently inspected, is liable to fail. Small units can be operated from the batteries used for lights or night flying or from power furnished by a small hand driven generator. The ordinary waterproof size range of these small units with any kind of power supply is so limited as to be of doubtful value. Small short wave sets often are heard for almost miles at a distance. But no regular distant stations are located on the short waves. Also, short waves skip over local distances and thus an emergency signal may be heard at the point from which speedy relief can be dispatched.

There is no question but that the best emergency channel is the one on which ordinary communications have been established. The set to be used on it is an emergency in the set which has been used on the handling of traffic on the ordinary medium of light. In other words, communication on the set of the normal transmitter and the usual wavelength can be used. With this objective in mind several plans are available at which two will be discussed.

Development is being pushed with some extent of a separate small portable system which can be used to drive the generator at all times. The French have recently brought out such an engine which is being tested with enthusiasm by their marine aerial operators (Globe-Méditerranée notes). In all probability the future will see the wide adoption of this kind of prime power for aircraft radio generators. A preferable engine for this purpose has not yet been built in this country, probably because there is no demand.

Battery Keeps Falls Charged

For the present, emergency power can be obtained in full form. The low voltage current from a radio receiver is used to charge a battery which is normally recharged by light and various tube power. The battery is thereby kept on a fully charged condition at all times. In an emergency the present is reversed and the battery current is made to run the generator from which the high voltage current is obtained. Such an arrangement is in the air, additional weight is not added and the battery is of the type of emergency service as required and is installed down in the fuselage.

An outstanding benefit to be derived from having a good radio transmitter on an airplane is that distress messages can be sent off before a forced landing is made. The set is called "Signal of Distress" and "Old Glory" both succeeded in giving out messages of impending disaster. Plans on lander in radio code, in addition, send their approximate position.

A summary of the foregoing general communication in formation follows.

Radio telegraph transmitters are smaller, cheaper and more reliable than radiophones. Trained personnel are required to operate both devices. Any receiver can be used with either type of transmitter. An airplane equipped only with a receiver can obtain weather information from a nearby radiophone station or from distant telegraph stations making the information in simple code. Airline not operating on strings having powerful radiophones at frequent intervals should rely on telegraph service.

For emergencies the main radio transmitter mounted in a powerful electric system affords means of communication, though other schemes are of limited utility in the absence of normal transmitting equipment.

A fourth article by Mr. Hyland will appear in an early issue of *Aviation*.

Planes on Chicago-St. Paul Line to Stop at Madison, Wis.

A REVISION in the contract air mail service which runs between Chicago and St. Paul and Minneapolis has been announced by the Post Office Department. The revision provides for a stop at Madison, Wis.

The full text of the Department's announcement is made public by the Bureau Aeronautics Director General, D. Irving Foster, follows:

Effective November 22, 1927, Madison, Wis., is added to the Chicago-St. Paul line, on the following schedule: Westbound—Leave Chicago, 5:59 A.M.; leave Madison, 6:59 A.M.; leave St. Paul, 7:40 A.M.; leave Minneapolis, 8:30 A.M.

Eastbound—Leave Minneapolis, 2:30 P.M.; leave St. Paul, 3:20 P.M.; leave Madison, 4:15 P.M.; leave Chicago, 6:35 P.M., arrive Chicago 7 P.M.

Flights continued, daily except Sunday and 31-day, scheduled days except Saturday and Sunday.

Laird Aircraft Corp. Building New Four Place Cabin Biplane

THE LAIRD Aircraft Corp. of Wichita, Kan., has just announced that it is building a four place cabin biplane powered with a Wright Whirlwind engine. The plane which is to be called the Laird Biplane is expected to be well under way. The corporation is headed by Henry D. Laird, president, a local business man of Wichita, with W. H. Laird, ex-mayor and ex-senator, Louis D. Warren, lawyer with the law firm of Warren, Warren & Associates, and others. Three other sons of Henry D. Laird are directors are A. H. H. H. A. E. H. H. and Bruce C. H. H. H. The chief engineer and chief designer is Charles W. Laird, who is also a director in the new firm.

Visit Curtiss Factory

FIFTY MEMBERS of the General Eastern Passenger Association recently composed of passenger agents, the staff of the railway and standing line in the country, visited the Curtiss plant at Garden City, last week. The party, under the friendly supervision of the experimental factory at the time.



Left to right, the visiting passenger agents and Curtiss Company officials.

James Company and their visit to Curtiss Field where "Curtiss" took them from their offices to the factory to see the new plane, the new model of passenger train. Eighty 8 1/2 ft. in, with the engine of the aircraft and the whole machine was not yet actively interested in air transportation, he believed that the time was now coming when railroad, steamship and air lines would be competing in the transportation of passengers.



Plan Madrid-Berlin Air Line

General Canales, head of the Superior Council of Aeronautics, has been in conference with German officials at San Sebastian relative to a Madrid-Berlin air service. According to the International Aerial Convention, Spain has reserved for purely national purposes all interior air transportation. The action would limit the line to a route between Barcelona and Madrid, and then to Germany. The conference is reported to have turned largely upon the question of providing a capital franchise, Greater-Berlin flight thereby making a possible interior traffic. It is said that in the near future a special air convention will be drawn up between Spain and Germany.

The S. A. Iberia Company, Aeronautics and Transportation has been authorized to establish an air service between Barcelona, Madrid and Vigo, and Barcelona, Madrid and Berlin, to meet with the international service and connect with Berlin to Berlin. The new line is authorized to carry out a public service of transportation of passengers and mail, and with aircraft already registered in Spain, and delivery personnel.

International Exhibition in Berlin

An international aeronautics exhibition will be held in Berlin, March 23 to April 13, 1928. This may be the most important of its kind ever attempted in Central Europe. The main object of the exhibition is to show the progress of aviation in all its important types of aircraft, sport and practice airplanes. No mention is made of the participation of military or naval planes, also in manufacturing exhibits as in exhibition or competition. There will also be booths at the exhibition for manufacturers of airplane engines and accessories of all kinds. Knowledge pertaining to aeronautics will be on exhibition including raw materials, semi-manufactured goods and apparatus. Aeronautics schools and publishers of aeronautical literature will be represented. In the performance of the exhibition open, the exhibitors state that absolutely no restriction will be placed on the exhibition. The exhibition is allowed to exhibit on the same basis with the German service. The fair will also include all kinds of exhibition flying and competitive flights are being arranged. Complete information regarding the participation in the fair may be obtained from Aeronautische Messe- und Ausstellungsbureau for Berlin.

Rio-Lisbon Flight Proposed

A prize of \$100,000 is offered in a bill now before the Brazilian Congress for a round trip flight between Lisbon and Rio de Janeiro. The flight is open to Brazilian or Portuguese men making the first round trip flight with stops at London, Paris, Pernambuco and Rio de Janeiro within 90 days and with a plane and engine of Latin manufacture.

Italian Tablet for American Pilots

A bronze tablet was recently erected by Mrs. William H. Whitfield, of Pittsburgh, Pa., in the Cathedral Pieve, Rome, Italy.

Francesco di Poggio, Italy, is secretary of his son James C. Whitfield and his son James C. Whitfield who has been at the flying field near that place during the World War.

The R-38 Prize Awarded

The R-38 memorial award, offered annually for the last year awarded by the Royal Aeronautical Society on some subject of a technical nature in the science of aeronautics, has been awarded this year to Wing Commander T. R. C. Cavendish, for his paper entitled "Safety from Fire in Airships."

To Establish Airport at Rio

The past inspector of Rio de Janeiro, Brazil, has reported to the minister of transportation that it will be prudent to use the land at Mangaratiba at the head of the bay for the construction of an airport which is planned to be used as a field hangar and other accommodations for both sea and airplanes.

Plan Newfoundland Air Mail Service

It is reported that an air mail service between Newfoundland and the United States will be established within a year. The plan is to establish a service between St. John's, Newfoundland coast, transporting it by fast motor boats to their base and then by airplane to the United States.

New Honduran Airplane Service

One of the large American firms companies on the north coast has recently purchased a six passenger airplane to the United States. The airplane is a private plane, but will be used for public passenger and mail service will also be rendered.

German Concern Contracts with Luft Hansa

The L. G. Farman-Hansa has concluded an agreement with the Luft Hansa, arranging for the transportation of merchandise by planes owned and operated by that company. Goods have frequently been transported by air in Germany, but this is the first instance of a regular contract having been signed, by which the shore concerned concerns obligations itself to forward, within a given period, a certain amount of freight by air.

Paraguay-Buenos Aires Air Service

Air mail and passenger service between Paraguay and Buenos Aires has been prepared by an Argentine company, under the management of General Manuel Bonifacio Bonifacio. Plans have been signed with the expectation of inaugurating the service before the first of the new year.

Airports for Horta

Horta, situated on the Island of Faial, in the Azores, will have the first modern airport, it plans, which are now under consideration, materials. A lounge and a meteorological station have already been established.

Side Slips

By ROBERT S. GARDNER

There certainly must be some fearful and wonderful things going on in California aviation circles, and we intend investigating carefully before we do any more joking about some of the seemingly impossible aerial accomplishments attributed to the newspapers out there. Mr. W. A. D. writes to us from San Francisco as follows: "Thought you might be interested in the following excerpt from a letter which I have just received, applying for insurance on an airplane model. The broker states, 'I have a client who is building a Curtiss airplane model, on which he is trying to correct air pockets that would hold the plane in the air while a mechanic could repair any trouble or defect which might arise while the plane is in flight.'"

Probably those California aviation who have been repairing landing gears and overhauling engines in flight really had plenty of time in which to do it after all.

We do hope though, that when our mechanics get really the aerial repair work as a regular thing, they will not start making on an eight hour day. Think of the possibilities if they dropped all of their tools and some parts by parachute when the fire clock strikes five, leaving pilot and passengers depending on the air pockets of night.

Mr. T. H. H. sends from Philadelphia a clipping from a local paper, showing a photograph of the new airplane carrier which has just been launched. Part of the descriptive matter states "Another striking feature in the ship's top or flying deck, 800 feet long, for the use of airplanes of which the ship can carry more than four scores."

This certainly will prove to be a "strifeless" feature, if any of the four score airplanes do attempt to land on the deck.

Mother Goose up-to-date—

Four scores of airplanes,
Flying around in line
One landed on the deck,
Leaving seventy-one

A recent visitor to the United States from Germany is supposed to have brought over samples of a new metal alloy which is as light as aluminum and three times as strong as steel. Apparently the new alloy has reached Germany and the winning prize submitted in a recent contest for purity in Lanthanite light, was entitled "Wings of Lead."

Mr. H. M. L. notes, in an article in a Kansas paper concerning the inauguration of night flying on the Kansas City-Dallas mail route of the N. A. T., that "Installation of wing beam lights at intervals of every ten miles along the 1000 mile route is under consideration."

These beams would be just the thing for a line rack as might be started by one of our famous trans-Atlantic fliers. The one we have in mind in the ship who intended to fly from England to America but went to India instead, as weather conditions were better in that direction.

A friend of ours who used to be a mechanic with the air mail in the early days of that service, tells a story which is entirely very well the flying conditions which have come to be taken for granted by the pilots. He saw one of the pilots at a field the other day, not having seen him for a year.

ber of years. He went up and shook hands, asking the fee if he remembered him. "Surely I do," he said, "and I've been waiting to ask you all this time if you are dead now, your way back to the hospital that was pretty dry that you turned me home in the middle of that field."

The Intrepid Aviator was in to see us again the other day and told us that he had increased the rate for plane: eight out at his field. It seems he had decided he was working for too little money after reading in the "Air Service News Letter" of the qualifications necessary for a successful pilot. According to Captain Lynn, Director of Ground School at Kelly Field, the requirements are "The mental faculty of active and intensive discrimination of the stimuli of the sensory-motor apparatus to harmoniously adjust metabolic changes in physiological and psychological equilibrium in such a manner as to comprehend and assimilate instructions in the execution necessary to perform the intricate and complex operations which comprise the piloting of aircraft."

The Intrepid Aviator hasn't figured this all out yet, but says that unless the Department of Commerce gives him a do something about it, he intends to continue his flying in the good old-fashioned way.

There was an incident we have been forgetting to mention, which occurred shortly before the start of the New York-Spokane race, and which illustrates the old adage that one of the most interesting races is that which might have been. One of the pilots who had just flown in from the west and landed at Custer Field, told us that he had intended landing at the adjacent Rosemont Field, but then had been told a large crowd there in the grand-stands had been changed his mind and come in to Custer. As the crowd he mentioned was watching the International Polo Championship matches, which were being held at another flying field he certainly needed a wonderful race day to be landing there.

Air Ambulance at Kelly Field



Since the Cox-Kleiman airplane was delivered from Kelly Field, to Kelly Field, it has established a record for emergency medical missions. To the end of August 27, the plane had carried a total of 22 patients, made 56 emergency flights, and was 25 hours in the air.

AIRPORTS AND AIRWAYS

Philadelphia, Pa.

By R. Brown

Two Pitcairn Mailways, PA-5, with Wright Whirlwind engines, have been sold by Pitcairn Aviation, Inc., to the United Air Transport, Inc., for use in the New York-Boston night air mail service.

Pitcairn Aviation, Inc., New Santa Clara from the Philadelphia Navy Yard has Pitcairn Field, is a Pitcairn Operating PA-5, PA-5B engine. He was taken from the field to a domestic airport.

Phil A. M. Banks, of the Pitcairn organization, tested two new Pitcairn Mailways at the field and found they operated very well.

Robert P. Hewitt, manager of field operations at the Philadelphia Airport, has announced that the Lexington company has taken 1,200 passengers on short flights at the field since June 1. This does not include inter-city, long distance or special flights. The flights were made in Waco-B and 100 and a 4-engine Fairchild cabin airplane.

Leading Field Income

A survey recently completed revealed that Pennsylvania has 100 leading fields for aircraft.

The fields are scattered throughout the state's airports.

reaches. There are 10 in the Philadelphia area and three others in the Pittsburgh area. In 1925 the state had only two airports.

Work has been started on a map showing the location of the fields, their proximity to larger towns and highways, and their location in relation to railroad lines furnishing local contact with the airports. Fields used by the United States Army, the Air Mail Service, and those owned by non-aviation or operated by private concerns are included.

Leslie Earl J. Carpenter, Air Corps, United States Army, attached to the 103rd Observation Squadron, Twenty-seventh Division Air Service, Pennsylvania National Guard, at Philadelphia, addressed the well-attended University of Pennsylvania Aviation Club recently and told club members the recommendations for Army aviation costs.

The club, consisting one member with nearly 400 hours of solo flying and another member with 200 hours, has tripled on original membership of last month and now has nearly 100 members, many of whom will take the examination for aviation pilots.

Recommendations for membership are: The student must show sufficient interest in aviation and make as good a written report on some phase of the subject, telling also why he would like to be admitted to membership.

The club has written to the Harvard University Flying Club, a three-year-old organization headed by Robert H.

Quite Often the Little Things Count

IN the STEARMAN - the tubing is protected against corrosion on the inner surfaces as well as the outer - the steel fittings are cadmium plated - the vital bearings are "Alumite" lubricated and the tachometer shaft, switch wires, temperature and oil pressure lines are carried in conduits



The Stearman Warfield Mail Plane

STEARMAN AIRCRAFT HAVE A PERSONALITY.

The Stearman Aircraft Co., Wichita, Kansas

Inches, for results of their class work. Harvard students will speak at a U. of P. meeting soon.

During a meeting at Harrisburg, the Public Service Commission of Pennsylvania received applications for the incorporation of four aerial transportation companies. They are the Gettysburg Flying Service, of Gettysburg, the Noble Aircraft Company, of Philadelphia, the Reading Airways, of Reading, and the Pennsylvania Aerial Transportation and Express Company, of Wilkes-Barre.

The commission's attitude was favorable toward the aviation industry in this state, the commission indicating that private concerns will have full opportunity to develop commercial aviation.

The commission, however, indicated that companies as these were the first applications for aviation service in some of the four that body, they would feel they may encounter, regulation of aerial common carriers being a phase of public nature in which the commission desires to become better informed.

The Gettysburg Flying Service and the Reading Airways, two of the applicants, said the commission was now ready to begin operations immediately. The Noble Aircraft Company and the Pennsylvania Aerial Transportation Company announced they would start operations within a few months, if their applications are approved.

The Wilkes-Barre promoters laid an ambitious program before the commission. They outline the establishment of regular service between Wilkes-Barre and cities in the east, south and west, using planes carrying six and eight passengers in addition to the pilot. Passengers, freight and mail will be carried. Letter, if any, night-seeing work is contemplated.

During two Pilatus Openings (PA's) with ON-5 engines, pilot, Herbert Smith and J. W. Shaffer left Private Field,

Pa., near Philadelphia, recently, for Condon Field, Ohio, Pa., to establish operations for Private Aviation Co., Inc.

With Smith and Shaffer were Edward S. Barrenger and J. H. Hoad, Private Aviation. At the same time, Mr. Hoad, manager of Private Field at Indian 4 for the past year, left by train for Atlanta to take over a new duties as manager of Private Aviation at Condon Field, Private Aviation of Georgia, Inc., a subsidiary of Private Aviation, Inc., Philadelphia, will start operations soon (copy). Passenger carrying, general law flights and flying to various will be undertaken under the direction of Mr. Hoad and his staff of four men.

Under an agreement with the City of Atlanta, the United States Navy has promised to make an investment of \$1,000 at Condon Field. A hangar has been erected by the Private Aviation and the city has started the installation of landing and field lights.

When the New York to Atlanta air mail service is inaugurated early next year, the Private Aviation at Condon Field will serve as the southern terminus of the line, the Private Aviation, having been awarded the government as mail contract. The New York to Atlanta service was to have been started this fall, but the government's inability to complete its lighting of the air route forced a postponement until next year.

Although no definite date has been set, the government is going to complete its lighting facilities by March 1, the Private Aviation has been notified.

Dr. Pratt, of the Bureau of Standards, is working on the construction of three airplane radio sets, which will be installed in Private Aviation's to be operated over the New York Richmond section of the New York to Atlanta air mail service.

Assessing plans for the installation, W. Lawrence Le-

per, of Private Aviation, Inc., said: "While it may be expected that, in the not distant future, the radio between and air route service will be available over all the air routes of a country, such facilities cannot at this time be treated as a large order."

It was, however, of the fact that there is already a radio service installed at Condon Field, New Brunswick, and that it being operated by the Bureau of Standards for experimental purposes at Condon Field, Pa., it is planned to provide the Private Aviation, to be used on the New York to Atlanta line with radio equipment so that pilots flying over this section of the route may have the advantage of radio facilities.

The experience obtained there will prove of considerable value in extending this service to the Richmond-Atlanta route, it is later said.

Thirty-one planes of Private Aviation, Inc., and its associated companies carried 26,234 passengers from Jan. 1, 1937, to Nov. 22, according to a report just announced by W. Lawrence Leffer.

The passengers were carried by Private planes at Princeton, Pa.; near Philadelphia, the Richmond, Va.; Elizabeth Airport, the Greensboro, N. C.; Municipal Airport near the Springfield, S. C.; Municipal Airport, and at Condon Field, Atlanta's airport.

The 26,000-odd passengers were in charge of master pilots including Private aviation pilots. Most of the flights were taken at Private Field, Haverhill, Pa., and although the aircraft were kept of with care, the safety record for Jan. 1 and Oct. 31, which a temporary record was kept, totaled 145,760.

The figures announced by Mr. Leffer do not include law flights or long distance trips. They reveal that during 1937 the Private Aviation more than doubled its passenger-carrying record of 1936, when 14,000 persons were taken for short flights in the company's planes. Of that number, 2,800 flew at the Roanoke-Carlisle line and at Ocean City, N. J.

Ned Davis Trophy Awarded

The Ned Davis trophy is known as the Ned Davis Trophy, awarded to the Navy Department by Henry F. Guggenheim, president of the Naval Gunpowder Fund for the Advancement of Aviation, has been awarded to the VP-30 Squadron, BuArons. The trophy will be awarded annually to the Naval Reserve aviator and attending the highest rating, the Philadelphia unit having received that distinction during 1937.

The trophy will be presented on behalf of the Philadelphia unit by Lieut. Comdr. Robert D. Hodder, USNRP.

The PV-31, the guest airplane with a flying record of more than 2,000 miles, now under construction at the Naval Aircraft Factory, Philadelphia Naval Yard, will not be completed until spring, according to Comdr. Ralph D. Weyersbacher, head of the factory.

It can dispatches from Washington said the Navy's new plane was ready for flight, but Commander Weyersbacher has stipulated that detailed plans, and not the plane, have been completed. Parts of the new plane are being tested now.

1) PV-31 will be of a type similar to the PV-18, which was built by Comdr. John Rodgers and is in business attempt to be built from San Francisco. It will be longer than the previous one, lighter in construction and will have a much larger wing area.

2) Bureau of Aeronautics will open bid, in December, for construction of twenty-five planes to be known as PV-32. They will be equipped with air-cooled engines.

3) PV-31 is a biplane with a large wing spread. The wing is of a semi-circular type and the lower wing is

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Seating Capacity	pilot and 4 pass.
Weight Empty	2100 lbs.
Wing Area	320 sq. ft.
Span	42 ft.
Max Speed (sea level)	120 M.P.H.
Engine	Weight 1400 lbs.

EQUIPMENT

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7

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L. Myerwitz
24, 1937
309 Hill Avenue, New York



of the B.A.F. type. The emulcation has been found to give great speed and stability.

Pittsburgh, Pa.

By Ray A. Tisdler

The Joint Lakeside Glider Aviation Committee composed of thirty members, three representatives from each of the ten local glider clubs, has just inaugurated its program for the public survey for a large Pittsburgh airport. Part of the survey data distributed was a specially prepared map of Allegheny County covering a radius of ten miles from the center of Pittsburgh. The county is divided into ten equal sections, with each club assigned to a section for survey purposes. In addition to the map, a list was distributed of suggested requirements needed in conducting the aerial airport location.

At this morning's event, Leigh Wade, Board-of-the-World War, was a guest and addressed the gathering upon the subject of "What Are Aviation's Present Needs?" Specialists invited guests to this morning were officers of the Aero Club of Pittsburgh, and aviation lighting engineers from the Westinghouse Electric & Manufacturing Company.

Gettysburg, Pa.

The Gettysburg Flying Service, the first aviation company to apply for a state charter in Pennsylvania, has carried more than 2,000 passengers on short flights over the 2,000 acre battlefield. Capt. Lowell S. Harding and Paul Charles are pilots for this company. Three large Alexander Eaglevorths constitute the flying equipment.

The Gettysburg Airport covers 60 acres. It is situated on the old Ferry farm, Oak Ridge, on the historic battlefield and is near the Lincoln Highway, at the hub of a network

of good roads. A club house with apartment quarters for men and women serves as an entrance to the field.

Teterboro Airport, N. J.

Figures on air traffic for the month of October, just completed, show that 22 planes arrived at the airport, which is situated at Hobbrough Heights, N. J., and 22 left for other points in the United States. These planes carried 53.5 tons and 20 passengers.

Among firms who used Teterboro were Colonial Land corp., Brook and Solberg, Chamberlain and Babcock.

In addition to these non-military trips, 1,650 passengers took short joy rides with the Coker Flying Circus and Colonial Air Transport.

Camden, N. J.

A 4,200,000 radiomagnetic beacon, as big as a 50-foot tower, has been erected on city property at Harrison Avenue, between Twenty-ninth and Twenty-eighth Streets, in the United States Department of Commerce.

The light designates the More Phillips tract, Camden's international landing field, and is expected to prove invaluable to pilots when the New York-Albany air mail service is inaugurated next year.

Three lights are mounted on top of the tower, which is of light metal construction. The strongest beam is 0.66 degrees and the other two illuminate the vicinity, their beams being turned downward at an angle of about 45 degrees.

During the day, a flare can obtain its bearings by a 21 by 55 foot concrete arrow on the field, pointing in the direction of New York City. The tail of the marker denotes the direction of the last release.

Clarence D. Chamberlain, New York to Germany line, has made a series of inspection trips to the More Phillips tract

December 22, 1937

at East State Street and, during his most recent visit, told city officials he favors its location over Manhattan and Brooklyn as a site for his proposed airplane factory.

Chamberlain said he would probably agree to locate here if the Camden City Commission provides in some way for the purchase or rental of the More Phillips tract as a municipal airport. His attitude was made known to friends in Camden after he had spent two hours in conference with the Camden City Commissioners and with members of the State's Commission of the Camden Chamber of Commerce. He last visited last here, Chamberlain was accompanied by Jane Foster Charles Lockwood, of New York, his personal helper.

"One of the strong points of the More Phillips tract as an airport site," said Chamberlain, "is that you can land on the flat. A Camden, step into an automobile, and be in the heart of Philadelphia in forty minutes."

The proposed Camden airport at East State Street has 38 acres of level land in splendid condition and ready for use as it was, according to George B. Robinson, chairman of the Airplane Committee of the Camden Chamber of Commerce and former executive vice-president of the late Goodyear Corporation when he landed the United States in 1925.

Last year an aviation meet and exhibition was held on the field. Thirty-five planes participated and there was room for fifty more, Mr. Robinson said.

Portland, Ore.

By John W. Anderson

A new unofficial altitude record for OXS engine planes was set recently over the Vancouver, Wash., airport by a Bell Air Line plane piloted by Earl Russell. The altitude reached was 11,500 ft., 1,200 ft. high of this the mark set by Tex Rasmussen over Portland. The record is unofficial because no recognition was earned, as required by National Aeronautics Association.

John B. Allen, an official of the Bell Line, and Harry Stenholm, assistant editor of the Portland News, accompanied Russell on the flight.

The plane started through fog to make the record. At the 10,000 foot point the fog cleared so the wings, showing a mark such as Rasmussen before descent was started. The pilot said he would have gone higher had he the ice and low clouds encountered at that altitude.

The plane used was an Eaglevorth biplane. It was the new look model that was the Cessna B race between Spokane and Portland last September.

Wall: Now the plane about 30 miles up the Columbia River during the flight.

Local fliers are making a sort of contest of the altitude record setting. Others expect to have a try at Russell's record soon.

N. A. Spier, sales manager of the International Aircraft Corporation of Long Beach, Calif., and Cleveland, O., visited Portland recently while on a Northwest survey of aviation conditions.

Portland's newest flying school is being organized by the Northwest Aircraft Company. The first plane, an American Eagle aircraft company biplane, has been flown here by Capt. A. B. Macdonald, Army Reserve Corps, who will be chief pilot of the new organization. Ground instructions will be given by A. L. Adams. Temporary hangars are being built to house the school until the Port of Portland Airport is ready for use.

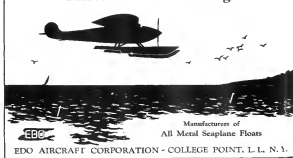
Macdonald Macdonald will try to break Russell's OXS record soon, he has announced.

Ben Outland, president of the Coast Bay Veevor and Bee Company of Marshfield, Ore., is a flying student at the

AVIATION

1423

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New! The Belden Radio Shielded High Tension Ignition Harness

ANOTHER Belden Achievement. First on market the highly successful low resistance shielded harness. Belden's new has perfected the first high tension shielded harness. It is used for either battery or magneto airplane ignition systems.

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Specify Belden Airplane Ignition systems on all aircraft. Belden's new has perfected the first high tension shielded harness. It is used for either battery or magneto airplane ignition systems.

Schenectady, N. Y.

Construction work under direction of William R. Ambler & Co., Inc., progresses. Three runways are finished and the first hangar is completed and in use. The installation of lighting equipment is under way, the wiring for boundary lights completed and the beams ready for use. Victor A. Rickard, head of the Telen-Cipes Airways, has been appointed superintendent of the airport.

At the present time there are two James and a Standard on the field, beside Mr. Rickard's Waco. One of the James is owned by General C. Blom and the other by C. Levy, of Newark Falls, N. Y. Both these men have asked under "Victor Rickard," "Victor Waco," from the Standard and has also received his information from Rickard.

Troy, N. Y.

By Robert E. Turk

A bond issue of \$50,000 has been authorized and authority has been given the municipality of public works to purchase the Van Valkenburgh farm for an airport. William E. Artiss & Co., Inc., will have charge of construction and engineering.

The Van Valkenburgh farm is located in the southern part of the city, ten minutes from the post office and a quarter mile from the bus and street car lines. The field measures 150 acres and there are no obstructions.

There will be three runways, approximately 2000, 3100, and 3700 ft. in length, and each will be 300 ft. wide. Plans call for the construction of two hangars, a station, an administration building and the installation of excellent lighting equipment to serve a Department of Commerce rating of "A."

Chief, Pashley Company has painted "Troy" in 12 ft. yellow letters atop one of its buildings. This will be supplemented by an arrow pointing north.

An aviation club has been formed at the Schenectady Post-office building, with an initial membership of 50. Plans have been formed for the purchase of some light planes for use of the members. The institute will offer a regular course in aviation, beginning next spring, and will be able to use some of the equipment received from the government.

St. Louis, Mo.

By R. A. Lindbergh

The original plan, that was submitted to the Municipal Plan and Scope Committee by its sub-committee on aviation, has been reworked and deemed inadequate to serve the best interests of St. Louis.

The recommendation by Mayor Albert Boud Lambert, dean of aviation in the city, suggests that the original plan of acquiring additional acreage adjacent to the present Lambert-St. Louis Flying Field making a total of 440 acres, be increased to 650 acres.

Mayor Lambert estimated the total cost of the enlarged field together with improvements as being approximately \$1,200,000 and urged that immediate action be taken in obtaining options on the additional area and that it be held subject to a bond issue to cover the entire project.

H. Russell Shaw, of the engineering firm of H. Russell Shaw & Co., was retained by the St. Louis Chamber of Commerce to determine what steps should be taken so the air would be adequately provided with necessary facilities for future requirements.

After a study of Mr. Shaw's report, the general committee decided to recommend the purchase of the present Lambert-St. Louis Field with the additional acreage and to continue efforts to establish a landing field, that would be close to the business district.

The increased area is nearly in line with the proposed outer belt system of highways, it could be converted into

a park mostly was half the size of Forest Park, it would make an ideal industrial district with factory and housing and, including facilities, railroad depot, well drained land and is located on two main highways.

The school children of St. Louis have presented a life size bust of Col. Charles A. Lindbergh to the Missouri Historical Society. It will be placed in the Jefferson Memorial.

Legislation by the public school children was limited to two cents apiece, permission having been given to the sponsor by the Board of Education of St. Louis and St. Louis County to make the bust a representative gift from the school.

In Colonel Lindbergh was extremely busy, Mr. Engstrom, the European architect who completed the work, did not have the opportunity of studying the subject with the degree of care desired.

Due to this, Colonel Lindbergh was placed in a specially fitted room at the Concordia Hotel and 600 photographs were taken with a movie camera mounted on a circular track.

The subject was seated in the center of the room and shots were made from a number of angles as the camera was revolved around him. Stakes were then made by Engstrom from the photos that were projected on a screen in his studio.

Berlin, Wis.

By R. C. Stumm

Plans in comprehending extending to present fair grounds into a landing field for airplanes, pending development. Although the building of an airport in Berlin is not contemplated at this time, it is a project which will draw attention in the future.

Madison, Wis.

Another shop has recently added to the air road route operated by the Northwest Airways between Chicago and the Twin Cities. The other shops that receive direct air mail service, besides the terminal points, are Milwaukee and La Crosse.

Over \$200,000 worth of land to be used on the first flight were received by Postmaster W. A. Davies previous to the opening.

An airport site was recently purchased by the city, which was selected by a representative of the Aeronautics Branch of the Department of Commerce. The area, which covers 250 acres, will be improved as to be in first class shape, with such installations as beacon lights, lighthouses and other necessary improvements and equipment.

The air road planes will eventually use this field, but the Penna Airport will serve in the meantime, until the making of a field is ready to be used without delay or interference. The Royal Airways Corporation, successors to the Madison Airways Corporation, operates the Penna Airport, on what a bargain has been created. This site is a 200 acre field which is in good condition for landing and take off.

Two planes are in general use, a Travel Air cabin monoplane, powered with a Wright Whirlwind (Miss Penna No. 1) and an OX-5 White Hawk (Miss Penna No. 2).

The two other school operated by the Royal Airways Corporation runs a Standard 2-3 and a shipyard wing Standard bi-plane plane. About forty students are expected to qualify as pilots under the guidance of Howard A. Mory, who has just been certified by the Aeronautics Branch of the Department of Commerce.

The Midwest Air Transport maintains the Madison Airport on a 90 acre field. They have the state agency for the Dredge and also two other planes, an Air-King and a Duce with high lift wings. Their training school for pilots will be thirty-two pupils.

Wirt R. Barnes Stevenson, formerly of the U. S. Navy

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PUBLISHER'S NEWS LETTER

The Fourth International Congress of Aerial Navigation held in Rome during the latter part of October provided an incentive to fifty-one countries to send delegates to discuss the progress and the problems of air transport which is extending with such rapidity to even the most remote countries of the World. And it may be noted that the representatives of these countries were not merely important persons who were afforded a delightful visit to the Eternal City, with its warm hospitality, but in almost all cases were experts in various aeronautical fields who came with a genuine purpose to serve. Residents of compressed aircraft, operators of air lines, famous pilots, engine builders, meteorologists, aeronautical engineers, specialists in aerial law, and many others interested in aviation in some particular branch came, at the invitation of Premier Mussolini to exchange opinions and make acquaintances. Probably there has never before been assembled such a composite group of aeronautical enthusiasts. Including the Counts of House and Monarchs, some hundred and fifty persons came to make this Congress the most important one held.

Many persons have asked about the direct purpose of the Congress, its power, its decisions and its authority.

As these congresses are to be held every two years—1925, at Holland—it may be well to clear up some of these points as the imaginations of those belonging will increase greatly with the expansion of air transportation. Physicians, lawyers, scientists and many other professions held Congresses at conventions in various parts of the world where leaders in their particular field come and give the results of their researches, discuss new discoveries and give to the world reports on the progress of their art or profession. Discussions by well-informed experts open new fields for study and endeavor. Such meetings have the power to make decisions. Authority comes from the distinguished character of those in attendance and is for the purpose of it is for the broader dissemination of specialized knowledge. The Congress at Rome was divided into five groups, Aerial Navigation, Training and Progress, Aeronautics, Technical, Legal and Medical. For a week, specialists in all these fields read carefully prepared papers giving the latest results of observation and study. While many languages were used in the original presentation, French, the official language, made the papers available to all in a most usable form. When printed and made available for study, the hundred and fifty reports will give a broad view of aeronautical progress not to be found elsewhere in print. For these reasons, such Congresses should be encouraged. They bring together aviation people to discuss commercial air trans-

port. This could never be done if the military side of the air were to continue to predominate.

The host in Rome was the Air Ministry. With the active support of Premier Mussolini who, of course, being a pilot, is the leading figure statesman in the world, the Under Secretary of State for Aeronautics, Italo Balbo provided the most elaborate entertainment for the guests and every facility was provided for the convenience and comfort of all the delegates. Senator Balbo was one of Mussolini's chief aides at the time of the historic March on Rome and although still in his thirties is one of the most important figures in contemporary Italian life. He presided at the Congress and by most careful staff work provided entertainment and motorcars right wrong time for his large group of guests. Premier Mussolini opened the Congress with a speech that was not only gracious in its welcome but extremely optimistic in its forward looking views. At this meeting was held in the former Palace of the Senators on Capitoline Hill, with many of the official delegates and Italian officers, wearing uniforms with countless decorations, the occasion was one of great brilliancy.

Americans who attended the arrival of the Pan American Group. Will Lyon in Washington, the distinguished delegates from South and Central America hardly believed upon where they had landed as they came to see over the heads of earlier arrivals. Such an occurrence is unthinkable anywhere in Europe and those who have the opportunity of seeing the very unaccustomed guests are astonished and joined in Europe should be all in this power to impress our government officials with the importance of handling international affairs with dignity and forthrightly. Probably nowhere else in the world could anyone be provided for such a meeting as were available at Rome. Not only were palaces at great beauty and historical importance used for entertainment and meetings but the opportunity for right strong was remarkable. After the Congress, the delegates were taken to Naples, Milan, Turin and Venice where they were shown numerous developments of interest, as well as entertainment with the same cordiality as in Rome. And what will be particularly interesting is that all delegates were given visas for their passports without the usual fee, half rates on the Italian railways and half rates at the hotels. Now that the United States is taking from risk in commercial and progress aeronautics an international convention should be held here which would attract visitors from all parts of the world. And when they come they should be shown the many enterprises that were so an emphasis in Rome.

December 12, 1937

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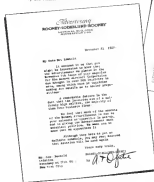
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